love bird-life better than mutton will probably hope not.

The natural food of this extraordinary parrot consists of fruits, roots, honey, worms, insects, and grubs. It is gifted with an inordinate curiosity, and seems ever ready to experiment and investigate novelties. Mr. Marriner believes that this inquiring spirit is responsible for its predilection for fresh meat; that it first began by experimenting with sheepskins and dead carcases, and later on took to killing on its own account. The idea that the kidneys are its especial tit-bits seems to be based entirely upon the fact that the sheep is generally attacked in their neighbourhood; this, however, is the only part upon which the kea can maintain a footing while the sheep is racing about and trying to throw off its torturer. The cruelty of the whole proceeding is horrible in the extreme, and the annual loss to the run-holders is estimated by the author at 5 per cent. of the flocks. The birds appear to enjoy their sport exceedingly, but they have not yet learnt wisdom, and fall an easy prey to the avenger. When the kea hunter has exhausted his cartridges, he sometimes, we are told, allows the birds to see him disappear behind an overhanging ledge of rock. Their curiosity induces them to try and find out what has become of him, and one by one they walk to the edge and look over, only to be knocked on the head by his stick. If so, why waste cartridges? Perhaps there is not always a suitable rock handy.

The book is brightly written, and contains some good illustrations, and we recommend it to all lovers of nature. Considering its size, however, the price seems to be rather high. A. D.

(1) *How to Study the Stars.* By L. Rudaux; translated by Dr. A. H. Keane. Pp. 360. (London: T. Fisher Unwin, 1909.) Price 5*s.* net.

(2) *How to Identify the Stars.* By Dr. Willis I. Milham. Pp. v+38+plates. (New York: The Macmillan Company; London: Macmillan and Co., Ltd., 1909.) Price 3*s.* net.

(1) BOTH the means and methods of observation dealt with in this book are eminently practical, being founded for the greater part on the progressive astronomical equipment of the author and the methods which, in actual use, he has found effective. The needs of the amateur are all along kept in mind. The interested and intelligent user of a pair of opera glasses is led to make for himself apparatus more ambitious. As the possessor of a telescope he is shown practical, and often home-made, mountings for the smaller sizes, while for the amateur of means, to whom a medium-sized equatorial reflector or refractor is possible, the question of a suitable house for his instrument is dealt with. Here the varied experience of the author is called in, the important question of cost not being forgotten.

Part ii. is concerned mainly with methods of observation and results. The study of sun, moon, and planets is undertaken, often with apparatus by no means extravagant, and the kind of results which may be expected are indicated, by reference to the author's own work, and by actual photographs reproduced.

For the purpose of progressively instructing amateur astronomers, the book should prove successful. The translation seems, on the whole, well done, and a readable work has been produced.

(2) The title of this book suggests at once its elementary nature. The appeal both of the text and the charts is to beginners in astronomy. The thirty-eight pages of letterpress deal in a sketchy way with such subjects as the history of the constellations, stellar magnitudes, and colours and methods of study. So many subjects in so few pages obviously precludes any fulness of treatment. The "history" consists chiefly of a list of constellation names, with genitives and meanings, together with the names of their proposers, and the section devoted to "star colours" occupies less than a page. The list of the twenty brightest stars, giving magnitudes and colours, is useful, while the division of the eighty-eight constellations into four distinctive groups should prove helpful in memorising.

Four small charts, showing the stars visible at convenient hours during the various months of the year, and twenty-four constellation tracings are appended.

An excellent feature of the publication is the list, at the end of each section, of books and papers suggested for further study.

The general method followed and material presented is stated to be essentially the same as that used in the course on descriptive astronomy in Williams College. Within its limitations the work is accurate and serviceable, and may be recommended as a convenient epitome of the subject.

Scientific Nutrition Simplified. By Goodwin Brown With a Supplementary Chapter by Dr. J. Sven. Pp. xi+271. (London: William Heinemann, 1909.) Price 2*s.* 6*d.* net.

THIS little book is one of the simple-life series. It puts in popular language the information for the practical application of the principles of nutrition advanced by Mr. Horace Fletcher and Prof. Chittenden. The main principle involved is the reduction of the protein intake to about half the amount usually accepted by physiologists as the normal. In reviews of similar books which the present writer has contributed to NATURE during the last few years, it has been pointed out that the Chittenden *régime* is not free from danger, and it is unnecessary to traverse the same ground again. The general tenor of the present work contrasts very forcibly with the scientific exposition of the subject in the work of Max Rubner recently reviewed (November 4, p. 2). The enthusiast sees only the *pros* and does not pause to consider the *cons.* in a subject which really bristles with difficulties. No one wishes to advocate over-eating, but to preach a doctrine of under-feeding as a permanent and universal practice is a very different thing from the temperance and moderation which is the ideal. The majority of physiologists have condemned the Chittenden diet as insufficient, and those with knowledge are more likely to be correct than the faddists, even if they can count one or two disciples drawn from the scientific world in their ranks.

A great point is made in the present work of Mr. Fletcher's advocacy of thorough mastication. Nobody denies the importance of the saliva and of the process of chewing, but to advocate the supreme importance of the least important of the digestive juices, and to elevate the action of the jaws into what seems to be regarded almost as a religious exercise, is not only unscientific, but ridiculous. W. D. H.

A Barometer Manual for the Use of Seamen; with an Appendix on the Thermometer, Hygrometer, and Hydrometer. Issued by the authority of the Meteorological Committee. Sixth edition, extensively revised. Pp. 67. (London: H.M. Stationery Office, 1909.) Price 3*d.*

ALTHOUGH chiefly intended for the use of seamen, this manual will be found of much service by anyone desirous of obtaining accurate information relating to the use of the barometer, and its connection with weather conditions and storms experienced in all parts of the globe. It is a revised edition of the Barometer Manual prepared by the late Admiral FitzRoy, formerly chief of the Meteorological Department of the Board

of Trade, which was very favourably received. The popularity of the present manual and its immediate precursors has been greatly increased by its adoption by the Board of Trade as a text-book in connection with the examination of masters and mates in the mercantile marine service. It has been prepared under the superintendence of Commander Hepworth, marine superintendent of the Meteorological Office, formerly a keen observer of meteorological phenomena in various oceans. Several new charts have been constructed from the materials in the possession of the meteorological committee, and show, *inter alia*, the mean isobars for the middle months of each quarter, and the pressure and prevailing winds for January and July over the globe, with an interesting discussion of the leading features exhibited.

Cows, Cow-houses, and Milk. By G. Mayall. Pp. xi+102. (London: Baillière, Tindall and Cox, 1909.) Price 2*s.* 6*d.* net.

THE above title covers a lot of ground for a small book of about a hundred pages. Naturally, we expect to find the information much condensed; thus, in the chapter on breeds, little more than a page is given to the premier race, Shorthorns. Again, in feeding cattle and in the variations of milk, we are told, in the one case, a fair ratio is 1 to 6 or 7, and, in another place, ½ lb. to ¾ lb. of good oats is said "to improve fat yield and milk taste." We should have preferred to have seen the starch equivalent and protein in the ration explained in a different way. Breeders, like other people, cannot be expected to agree on all points, and we should wish to have our heifers served long before "at the end of their second year."

The illustrations are very good, and misprints in the reading matter appear to be very few. One may be pointed out on p. 56, concerning the average per cent. of fat in cream, which may be anything from 25 per cent. upwards; also, on p. 63, 40° C. should read 40° F. Of the hygiene and veterinary sections we have nothing but unstinted praise. Everyone interested in this important subject should read "Checking the Spread of Disease." The book can be commended to the improving landowner, the land agent, the dairy farmer, and the short-course student, who requires much information in a limited time.

The Oxford Geographies. (Oxford: Clarendon Press, 1909.) *The Elementary Geography.* By F. D. Herbertson. Vol. II., *In and About our Islands.* Pp. 112. Price 1*s.* Vol. IV., *Asia.* Pp. 128. Price 1*s.* 6*d.* Vol. VII. *The British Isles.* Pp. vi+192. Price 1*s.* 9*d.*

Cambridge County Geographies. Gloucestershire. By Herbert A. Evans. Pp. x+155. *Westmorland.* By Dr. J. E. Marr, F.R.S. Pp. ix+151. (Cambridge: University Press, 1909.) Price 1*s.* 6*d.* each.

THE characteristics of the series of elementary books of geography to which the new volumes under notice belong have been described already in these columns (vol. lxxxii., p. 125). In the three new parts of Mrs. Herbertson's "Elementary Geography," it is satisfactory to find the same simplicity of language, correctness of information, and abundance of well-chosen illustrations which served to make the earlier volumes admirably adapted to the requirements of junior classes.

Both Mr. Evans and Dr. Marr have entered into the spirit of the scheme of the Cambridge County Geographies, and their accounts of Gloucestershire and Westmorland respectively maintain the high standard of the series. Geography is given the same wide interpretation, and the books include a description of the architecture, natural history, and geology of the counties dealt with.

LETTERS TO THE EDITOR.

[*The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts intended for this or any other part of* NATURE. *No notice is taken of anonymous communications.*]

The Atomic Weight of the Radium Emanation.

IN a paper by Mr. A. J. Berry and myself read before the Royal Society on December 9, on the thermal conductivities of gases at very low pressures, we showed that for the heavier monatomic gases, neon and argon, the experimental conductivity agreed (as well as could be expected from the present state of the measurements) with that calculated from the kinetic theory from the number of impacts of the molecules per sq. cm. per second and the molecular heat of the gas, assuming perfect interchange of energy on impact.

This suggests a possible means of obtaining experimental evidence on the much-debated question of the atomic weight of the radium emanation. If a moderate fraction of a gram of radium were available the infinitesimal quantity of the emanation would not be an insuperable difficulty, for at the sufficient pressure of 0·04 mm. the emanation from this quantity would occupy the sufficient volume of 2·2 c.c. The pressure of the emanation could be deduced from existing data by means of γ-ray measurements; but also, with hardly any elaboration of the apparatus, an accurate determination of the volume of the emanation could be obtained. For it may be remarked, without in any way reflecting upon the numerous and careful experiments that have been done on this volume since its first determination six years ago by Sir William Ramsay and myself, the purification of the emanation by ordinary methods appears at the best to be imperfect; whereas to an operator experienced in the use of the calcium method, worked out in this laboratory, no difficulty is to be anticipated.

On the view discussed in our paper, the thermal conductivities of the heavier monatomic gases should be inversely proportional to the square root of their atomic weights, so that the atomic weight of the radium emanation could be compared with those of the heavier argon gases by a novel method. FREDERICK SODDY.

Physical Chemistry Laboratory, University of Glasgow.

Alkali-syenites in Ayrshire.

IT is now well known that a group of basic alkalic rocks of approximately late Carboniferous or early Permian age occurs in central Scotland. Dr. Teall first remarked the teschenitic affinities of some of these rocks in his "British Petrography" (1888). During the recent work of the Geological Survey in central Scotland, many occurrences of teschenite, essexite, and theralite have been recognised by Mr. Bailey and Dr. Flett. In several localities the teschenites pass into picrites of the Inchcolm type. Although the general facies of this group is quite basic, and locally ultra-basic, the presence of acid veins in some of the teschenite intrusions has encouraged the hope that a more acidic phase might be discovered in some of the lesser known intrusive masses of central Scotland, hitherto indiscriminately lumped together as "dolerites."

This hope has been realised by the discovery of a large mass of alkali-syenite at Howford Bridge, near Mauchline. This mass, which is intrusive into the Permian lavas of the central Ayrshire basin, is finely dissected by the river Ayr. It is composed mainly of a peculiar medium-grained rock, consisting of thoroughly idiomorphic felspars, principally anorthoclase, with subordinate albite and orthoclase, a little nepheline, numerous small crystals of ægirine, brown and bluish-green soda-amphiboles (barkevicite and arfvedsonite) in mutual intergrowth, and ilmenite altering to leucoxene. The well-shaped crystals of felspars are loosely crowded together, and the angular spaces between them filled with abundant fresh analcite, which encloses the ægirine and soda-amphibole, as though these had been pushed aside by the crystallisation of the felspars in a thoroughly liquid magma. This rock passes downward